

DIVISION 6

WOOD AND PLASTIC

06010 LUMBER AND ROUGH CARPENTRY

PART 1 – GENERAL

1.1 WORK

- A. Provide and install all wood framing and finish carpentry necessary to complete the work listed on the **Scope** and specified herein.
- B. Where additional instruction is required, work shall be as directed by the **Inspector**.
- C. When rough carpentry work involves removal or disturbance of painted or otherwise coated surfaces, the **Contractor** shall comply with [Section 02050 Demolition](#) and [Section 01810 Lead Dust Hazards](#).
- D. Work includes all lumber, connectors, and related hardware and materials.

1.2 QUALITY STANDARDS

- A. Provide skilled, trained, experienced and competent workers to complete the work as specified.
 - Capable of handling any special heavy-duty or high-lift operations.
 - Sufficient in number for the work and time schedule.
- B. All work shall be as per State and local building codes and:
 - Manual for Wood Frame Construction, American Forest and Paper Association (NFPA), © 2001.
 - Plywood Specifications and Grade Guide of the American Plywood Association.
- C. Tolerances:
 - Vertical framing shall be plumb within $\frac{1}{4}$ " per 10 linear feet.
 - Horizontal framing shall be level within $\frac{1}{4}$ " per 10 linear feet.
- D. Moisture contents:
 - Moisture content of framing lumber shall be 19% or less by weight.
 - Kiln-dried or other lumber requiring lower moisture content shall be as specified.
- E. Grading:
 - Follow applicable lumber grading agency standards in accepting or rejecting delivered lumber.
 - American Forest and Paper Association (NFPA), © 2001, Appendix B.
 - Plywood Specifications and Grade Guide of the American Plywood Association.
 - Reject special lumber that is required when it is not marked and certified as kiln-dried or Preservative-treated.

1.3 SUBMITTALS

- A. Submit copies of all permits to both **Owner** and **Agency**.
 - Submit manufacturer's data required to prove compliance with these **Specifications**.
 - Submit copies to both **Owner** and **Agency** of all engineering data for any engineered building components, i.e. beams, columns, trusses, etc.

1.4 MATERIALS HANDLING AND STORAGE

- A. Delivery and inspection:
 - Reject any framing lumber that is not grade-stamped by a bona fide grading agency.
 - Do not accept or use lumber that has excessive: Moisture content, loose knots, decay streaks, rot, insect damage, splits, pitch pockets, waness, crooks, warps, twists, or bends.
 - Do not accept or use wood panels that deviate from grade standards or have excessive: Marred surfaces, cracks, defective patches, loose knots, split edges, or delaminations.
 - Materials and products delivered will be certified by the manufacturer to be as specified.
- B. Handling:
 - Handle lumber to avoid damage during transport, unloading, and moving on the job site.
 - Handle chemically treated lumber and panels strictly according to manufacturers' instructions.
- C. Store framing lumber and wood panels to prevent damage.

- Well supported off the ground.
- Protected from weather or moisture.
- Neatly stacked to prevent warping.
- Stacked with cross pieces for ventilation.
- Protected from occupant and construction traffic.
- Stored with level support to prevent toppling.
- Store metal connectors and fasteners in a dry location safe from physical damage.
- Store chemically treated lumber and wood panels outdoors until installation.

PART 2 – MATERIALS

2.1 FASTENERS, CONNECTORS, AND SUPPORTS

- A. Use hot-dipped galvanized steel or stainless steel nails for exterior, high humidity, and treated wood locations.
- B. Nails:
 - Use common wire or spike nails.
 - Follow all nail size requirements and nail spacings required by the building code.
 - Use hot-dipped galvanized steel nails for exterior work, areas of high humidity or at treated wood.
 - Electro-galvanized nails shall not be used on exterior surfaces.
 - Electro-galvanized nails shall not be used where corrosive staining might mar wood surfaces.
 - Nails into redwood or cedar shall be of stainless steel.
- C. Power-driven nailing shall comply with the following:
 - Power driven nailing shall comply with State and Local building code standards.
 - International Staple, Nail and Tool Association (<http://isanta.org/>) standards as outlined in the ICC Evaluation Services, Inc. (www.icc-es.org) Legacy Report (NER-272), © January 1, 2004.
- D. Bolts
 - Drill holes 1/16" larger than bolt diameters.
 - Drill straight through from one side.
 - Use washers under all nuts.
 - Do not bear bolt heads on wood; use washers.
- E. Hangers, connectors, and crossbridging.
 - Brand name Teco, Simpson, or equal.
 - Joist hangers
 - Metal framing connectors.
 - Metal crossbridging.
 - Galvanized steel, sized to suit framing.
- F. Anchors to adjacent construction:
 - Hollow masonry: Use toggle bolt.
 - Solid masonry or concrete: Use expansion shield and lag bolt.
 - Steel: Use bolt or ballistic fastener.

2.2 LUMBER

- A. Select lumber species and grade according to the design needs. Framing lumber shall be grade marked designed for Construction, Standard, or Stud use.
- B. Pressure treated lumber shall be labeled to show conformance with AWPA C22-03 "Lumber and Plywood for Permanent Wood Foundations – Preservative Treatment by Pressure Processes" and labeled by an inspection accredited by the American Lumber Standards Committee.

2.3 SHEATHING AND UNDERLAYMENT

- A. Sheathing and underlayment:
 - Subflooring: APA rated plywood sheathing, exterior grade or Oriented Strand Board (OSB).
 - Roof sheathing: APA rated plywood sheathing, exterior grade, Oriented Strand Board (OSB), or Waferboard with waterproof resin binder.
 - Underlayment: APA rated underlayment, approved for use under asphalt, vinyl, and resilient tile or sheet flooring.

B. Related construction and materials:

- Subfloor glue: APA solvent based, waterproof construction grade adhesive.
- Building paper: No. 15 asphalt felt, or spun-bonded polyethylene.
- Vapor barrier: 6 mil polyethylene.

PART 3 – INSTALLATION

3.1 WOOD FRAMING – PREPARATION AND PRECONSTRUCTION

A. Examine and verify that job conditions are satisfactory for speedy and acceptable work.

B. Coordination:

- Maintain a copy of the **Scope** at the job site.
- Maintain and use up-to-date trade standards.
- Identify actual dimensions of all rough openings in framing: Doors, windows, other framed openings.
- Cross-coordinate rough framing members with existing and new mechanical (electrical, plumbing, HVAC) installation requirements.

C. Operations:

- Provide framing, bracing and shoring as necessary to safely complete the work.
- Provide lifts, cranes, ladders or scaffolding to assist high-level framing work.
- Verify that materials are stored so as to not overload or interfere with construction in terms of: Quantities and weights, locations, or traffic.

3.2 ROUGH CARPENTRY, WOOD FRAMING – GENERAL

A. Installation of framing members shall be:

- Straight with a side variation tolerance of $\frac{1}{4}$ " per 10 linear feet.
- Plumb within $\frac{1}{4}$ " per 10 linear feet.
- Level within $\frac{1}{4}$ " per 10 linear feet.
- Square.
- Top-of-plate elevations correct and consistent with existing elevations.
- Aligned vertically and horizontally with existing framing.

3.3 ROUGH CARPENTRY, WOOD FRAMING – AT GRADE AND FOUNDATIONS

A. Use foundation grade or preservative-treated lumber as outlined in the building code and as specified herein:

- Do not use untreated wood wedges or shims in any location subject to moisture or decay.
- Provide ventilation space for girders that will be set in foundation wall pockets or directly above earth.

B. Installation of foundation framing members:

- Foundation fasteners shall not be located underneath any studs.
- Shims for mudsills shall be of preservative treated lumber.

3.4 ROUGH CARPENTRY, FRAMING MEMBERS – FLOOR JOISTS

A. Install floor framing members as required by the building code and as specified herein:

- Set with crowns upwards.
- Set with full bearing on plates.

B. Install joist hangers as per the building code, manufacturer's instructions and as specified herein:

- Set straight.
- Aligned.
- Substantially braced.
- Secured with correct size and type fastenings.

3.5 ROUGH CARPENTRY, WOOD FRAMING – EXTERIOR AND INTERIOR WALLS

A. Install stud framing as required in the building code and as specified herein:

- Substantially braced.
 - Secure with correct sizes and types of fastenings.
 - Install fire stops so as to provide complete, snug blocking between studs.
- B. Install special framing as required for:
- Position studs at corners to provide ample nailing backing for exterior interior panels.
 - Provide blocking and double top plate headers for wall openings.
 - Lap top plates and set butt joints so they don't occur over openings.
 - Install top plates to provide for uninterrupted, ample nailing backing for exterior and interior panels.
- C. Install headers and lintels as per the building code and as specified herein:
- Ample bearing.
 - Secure connection to supports.
 - Provide complete and temporary bracing.
 - Nailing and stop plates at floors and slabs.
 - Double-sided prop bracing at walls.
 - Diagonal horizontal cross bracing at plates of intersecting walls.
 - Braced walls won't move, waver, or shake when force is applied to them.
- D. Framing for related work:
- Prepare stud framing for waterproof finishes as outlined in the **Scope**.
 - Construct stud framing and blocking to support wall-mounted fixtures, cabinets, railings, and equipment.

3.6 ROUGH CARPENTRY, WOOD FRAMING – CEILING AND ROOF

- A. Install ceiling and roof framing members as required in the building code and as specified herein:
- Install ample bracing.
 - Set with crowns upward.
 - Set with ample bearing on plates.
 - Securely anchored to plates.
 - Install rafters with proper slope for roof drainage.
 - Make angled rafter cuts that are tightly fitted and securely anchored.
- B. Framing for related work:
- Provide adequate framing for fascia and soffit materials.
 - Provide blocking for the installation of roofing materials, flashing, vents, etc.

3.7 SUBFLOOR SHEATHING

- A. Install plywood subflooring as required in the building code and as specified herein:
- Stagger subflooring butt joints.
 - Nailing pattern.
 - Blocking with 100% support at all butt edges and support as required at intermediate spans.
- B. Install fasteners as required in the building code and as specified herein:
- Subfloor-to-joist connections must be sufficient to prevent any squeaking of flooring
 - Glue and secure subflooring to floor joists with screws or screw-type nails.
- C. Completed subflooring shall be:
- Level within 1/4" per 10 linear feet.
 - Free of depressions or humps.
 - Patched to repair holes, splits, or construction damage.

3.8 SHEATHING, SIDING, AND FINISH-UP WORK

- A. Install sheathing as required in the building code and as specified herein:
- Stagger wall sheathing butt joints.
 - Install wall-sheathing panels so that edges have full bearing on framing.
 - Include 1/8" expansion joints between sheathing panels.
- B. Install siding as required in the building code, per manufacturer's instructions and as specified herein:
- All joints are square.
 - Joints are staggered or per manufacturer's instructions.
- C. Prepare plywood surfaces for paint or stain according to manufacturer's instructions.

3.9 WOOD FRAMING – COORDINATION

A. Coordination with other work – mechanicals, fixtures, equipment, finishes:

- Coordinate location of electrical fixtures with rough framing.
- Coordinate location of plumbing work with rough framing.
- Coordinate location of HVAC work with rough framing.
- Do not allow HVAC ducts or plumbing components in wall framing to protrude beyond the face of framing.
- Supply and install rough framing members for in wall fixture and equipment supports such as blocking, anchors, brackets, and frames.
- Provide and install in wall blocking, anchors, brackets, and frames for plumbing fixtures, electrical fixtures, HVAC equipment, bathroom accessories, handrails, guardrails, shelves, closet poles, etc.

B. Movement joints and clearances:

- Provide joints and connectors for non-wood construction to allow for movement such as lumber shrinkage and normal thermal expansion and contraction of building components.
- Provide clearance between framing and other construction subject to fire hazard such as chimneys and appliance vent piping.

C. Waterproofing, water barriers, and vapor barriers.

- Prepare framing for waterproof finishes where waterproofing is required.
- Install water barriers, vapor barriers, and flashing as per manufacturer's instructions and as specified in [Section 07600 Flashing and Sheet Metal](#).

D. Coordination and quality control:

- Provide all necessary blocking for fire stopping including under enclosed stairs.
- Do not allow trades to impair framing strength by cutting or drilling through members.

3.10 WOOD FRAMING – BETWEEN PHASES AND AT CONCLUSION OF FRAMING

A. Inspection and cleanup:

- Remove all unusable wood scraps from site daily and between each phase of framing.
- Clean up sawdust, dirt, etc. daily.
- When rough carpentry work involves removal or disturbance of existing painted or otherwise coated surfaces cleanup shall be as outlined in [Section 02050 Demolition](#) and [Section 01810 Lead Dust Hazards](#).
- Do not bury any scraps or other trash on site.
- Schedule all required interior inspections prior to closing up concealed work.

3.11 FASTENERS, CONNECTORS, AND SUPPORTS – INSTALLATION

A. Nailing and connectors:

- Confirm that quantities, spacing, and patterning of fasteners meet building code requirements and are as specified herein.
- Provide correct sizes and types of nails for use in pneumatic nailing equipment per manufacturer's instructions, building code requirements and as outlined in International Staple, Nail and Tool Association (<http://isanta.org/>) standards as outlined in the ICC Evaluation Services, Inc. (www.icc-es.org) Legacy Report (NER-272), © January 1, 2004.
- Nail at sufficient edge distance to avoid splitting wood.
- Pre-drill as required.
- Remove and replace split framing members.
- Check nailing at each stage of framing before installing subsequent framing.
- Nail heads flush or recessed as required.
- Bent or used nails shall not be reused.
- Use pneumatic nailing equipment according to manufacturer's instructions.
- Recheck and tighten all bolt connections before final construction is completed.

B. Install joist hangers as per building code requirements and manufacturer's instructions.

- Set straight.
- Aligned.
- Completely secured at all connection points.

- Secured with correct size and type of fasteners.
- C. Install bridging as per the building code and manufacturer's instructions.
 - Placed so as to provide full bearing.
 - Set at joist midpoints or otherwise correctly spaced.
 - Bottoms are not nailed until the roof sheathing is laid.
 - Secured with the correct size and type fasteners.

END OF SECTION – 06010 LUMBER AND ROUGH CARPENTRY